

WHAT IS CLAIMED IS:

1. A device for coupling a facsimile machine with a personal computer, comprising:

5 first switch means having a normal mode position for electrically isolating the facsimile machine from the computer and coupling the computer and facsimile machine to at least one local telephone line and a scan/print mode position for directly electrically connecting the facsimile
10 machine to the computer and isolating the computer and facsimile machine from the telephone line;

second switch means normally biased to a first switch position and movable against said bias to a second position; *[manually]*

15 a small, low voltage DC source;

current generator means having an input and an output, said output being coupled to said facsimile machine;

20 ring generating means for generating a sinusoidal ring signal of a predetermined frequency and amplitude when coupled to said DC source; and

said second switch means including means for coupling said DC source to said ring generating means and for coupling the sinusoidal ring signal of
25 said ring generating means to said computer when said second switch means is *[manually]* moved to said second position and for decoupling said DC source from said ring generating means and decoupling the ring generating means from said computer and for coupling
30 said DC source to said current generating means responsive to return of said second switch means to said first position;

whereby the output of said ring generating means causes said computer to enter a scanning or print mode and subsequent application of said constant current to said facsimile machine and computer simulates an off-hook condition enabling the facsimile machine to transmit data presented in a document scanned by the facsimile machine to said computer or to transmit data from said computer to be printed by the facsimile machine responsive to a simulated off-hook condition.

16 ≡ 2. A device for coupling a facsimile machine with a personal computer, comprising:

first switch means having a normal mode position for electrically isolating the facsimile machine from the computer and a scan/print mode position for directly electrically connecting the facsimile machine to the computer;

second switch means normally biased to a first switch position and ^(manually operable switch member) movable against said bias to a second position;

a small, low voltage DC source;

current generator means having an input and an output, said output being coupled to said facsimile machine;

ring generating means for generating a sinusoidal ring signal of a predetermined frequency and amplitude when coupled to said DC source; and

said second switch means including means for coupling said DC source to said ring generating means and for coupling the ring signal of said ring generating means to said computer when said second switch ^(member, manually operable) means is moved to said second position and for decoupling said DC source from said ring generating means and decoupling the ring generating

means from said computer and for coupling said DC
source to said current generating means and coupling
the current generating means to the computer and
facsimile machine responsive to return of said
5 second switch means to said first position; *(upon release of manually operable switch)*

whereby the output of said ring generating
means causes said computer to enter a scanning or
print mode and subsequent application of said
constant current to said facsimile machine
10 simulates an off-hook condition enabling the
facsimile machine to transmit data presented in a
document scanned by the facsimile machine to said
computer or to transmit data from said computer
to be printed by the facsimile machine responsive to
15 a simulated off-hook condition;

said ring generating means further
comprising:

means responsive to said low voltage DC
source for generating an adjustably selectable
20 output signal of a given frequency;

phase delay means for delaying said given
frequency output signal;

step-up transformer means having primary
and secondary transformer windings;

25 said secondary transformer winding being
selectively coupled to said computer through said
second switch means; and

bridge circuit means for alternately
coupling said given frequency signal and said
30 delayed given frequency signal to opposing inputs of
said primary winding.

Sub B.1)

23 = 3. A ring generating device comprising:
a low voltage DC battery; [Source]
adjustable pulse generating means
responsive to said low voltage DC source for
5 generating an adjustably selectable output signal of
a given frequency;
phase delay means for delaying said given
frequency output signal;
step-up transformer means having primary
10 and secondary transformer windings;
said secondary transformer winding being
selectively coupled to a device for receiving a
ringing signal through a switch means; and
bridge circuit means for alternately
15 coupling said given frequency signal and said
delayed given frequency signal to opposing inputs of
said primary winding to generate at an output of the
secondary winding a sinusoidal ring signal of the
desired frequency and an amplitude greater than an
20 amplitude of the DC source.

fax to PC

28+ = 4. A method of interfacing a computer
with a facsimile machine, enabling use of the
facsimile machine as a scanner or printer for the
computer, comprising the steps of:
25 [] (a) operating a keypad of the facsimile
machine to generate selected tones;
(b) operating a first switch assembly
from a normal position electrically isolating the
computer from the facsimile machine and coupling the
30 computer and facsimile machine to at least one
telephone line to a scan/print position coupling
said computer to said facsimile machine and
isolating the facsimile machine and computer from

the telephone line responsive to the selected tones generated;

(c) momentarily operating a second switch assembly from a normally occupied first position to a second position for activating a ring generating circuit to generate a sinusoidal signal of a given frequency and amplitude and applying said signal to said computer and facsimile machine to cause said facsimile machine to initiate a scan mode or a print mode;

(d) releasing said second switch means after an interval, between one and two seconds to return the second contact assembly to the first position to remove said sinusoidal signal from said computer and facsimile machine and activating a constant current generating circuit for generating a constant current and applying said constant current to said computer and facsimile machine to simulate an off-hook condition; and either

(e) transmitting signals from the facsimile machine to said computer representative of information on a document scanned by said facsimile machine responsive to the simulated off-hook condition and operation of the start button; or

(f) whereby the computer transmits signals to the facsimile machine when in a print mode, responsive to the simulated off-hook condition.

24 = 5. The method of claim 4 further comprising the step of:

storing signals received by said computer in memory means for subsequent use.

30 = 6. A method of interfacing a facsimile machine with a computer to cause said facsimile machine to operate as a scanning device, comprising the steps of:

5 (a) transmitting selected tones to the facsimile machine;

10 (b) coupling the facsimile machine to the computer and isolating the facsimile machine and the computer from a telephone line responsive to generation of said selected signals;

15 (c) generating a sine wave signal of a given frequency and amplitude representative of a standard facsimile machine call signal and applying said signal to said computer for a given time interval, between one and two seconds whereby the computer is conditioned to receive signals representing data on a scanned document;

20 (d) generating a constant current signal after termination of said sinusoidal signal and applying said constant current signal to said facsimile machine to simulate an off-hook condition whereby the facsimile machine is conditioned to transmit signals representing data on a scanned document; and

25 (e) operating a facsimile machine start button for initiating transmission of said facsimile machine for transmitting information to said computer representative of a document being scanned by said facsimile machine.

30 31 = 7. The method of claim 6 further comprising the step of:

storing signals received by said computer in memory means for subsequent use.

8. The interfacing device of claim 1 further comprising:

automatic tone detector circuit means for detecting tones representing a unique number dialed from either the facsimile machine or the PC modem to automatically activate first and second relay means;

said first relay means, when activated, operating said first switch means to said scan/print mode;

said second relay means, when activated, operating said second switch means to said second switch position;

timing means energized responsive to activation of said second relay means for generating a signal after a predetermined time interval, between one and two seconds; and

means for deactivating said second relay means responsive to timing out of said timing means whereby said second switch means returns to said first switch position.

9. The interfacing device of claim 1 being mounted upon a circuit board arrangement which is positioned within the facsimile machine.

10. The interfacing device of claim 1 further including a storage device for storing data for later use and transmission.

11. The interfacing device of claim 1 further comprising a send/receive communications circuit coupled to the interface device to receive/transmit digital signals.

12. The interfacing circuit of claim 1 wherein said facsimile machine includes an optical scanning device for converting a generating analog signal representing a document being scanned;

5 an analog-to-digital converter for converting the analog signals into digital signals; and

 means for coupling the digital signals to the personal computer.

Add A.7
Add B.2
Add C.7
Add D.3
Add E.7
Add F.1